



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,266	06/19/2001	Yukihiro Matsumoto	41928	9419

1609 7590 04/03/2003

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.  
1300 19TH STREET, N.W.  
SUITE 600  
WASHINGTON,, DC 20036

EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
----------	--------------

1713

DATE MAILED: 04/03/2003

15

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/883,266

Applicant(s)

MATSUMOTO ET AL.

Examiner

Tatyana Zalukaeva

Art Unit

1713

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 January 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1, 4 and 8 are amended, new claims 10-14 are introduced in paper No.14. In claims 4 and 8 the new limitation of alkali metal hydroxide is introduced.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claims 1-3, 5-7, 9 stand rejected and claim 13 is rejected under 35 U.S.C. 102(e) as being anticipated by Fujimaru et al (U.S. 6,444,744B1), as per reasons stated in the first Office Action on the merits.

Fujimaru discloses a water absorbent resin and a method of making such resin. One of the possible options to produce a resin is polymerizing a monomer component containing a major proportion of acrylic acid and/or or salt which has a content of hydroquinone or benzoquinone less than 0.20 ppm. (abstract). According to Fujimaru the acrylic acid used in his process is one that industrially produced by a propylene gas phase oxidation process (col. 4, lines 7-11, col. 9, lines 19-40). In a finally purified acrylic acid the amount of hydroquinone is 0.5-1ppm (col. 9, lines 50-56). One of the advantages of Fujimaru is that the water absorbent rein is produced from acrylic acid having reduced hydroquinone content, of at most 0.2 ppm (paragraph bridging col. 5 and 6, col. 5, lines 12-17), a hydrophilic water absorbent rein is produced by aqueous solution polymerization (col. 6, lines 18-21); a water absorbent rein is at least partially neutralized (col. 6, lines 31-33); a resin of which the surface neighborhood of the particles are crosslinked is taught by Fujimaru in col. 6, lines 67-67. Fujimaru further teaches that examples of his resin include polyacrylic acids or neutralized polyacrylic

Art Unit: 1713

acids, neutralized by 50-95 mol. % (col.11, lines 20-30). Neutralization may be carried **out before, during or after polymerization** (col. 3, lines 35-40). The alkaline substances used for neutralization include **Na, Li, K hydroxides** (col. 12, lines 10-15). The polymerization temperature is preferably within the range of 20-90°C. (col. 13, lines 33-35). The water absorbent capacity of the resin according to Fujimaru is preferably **at least 30 g/g under a heavy load of 50 g/cm<sup>2</sup>** (col. 20, lines 25-30).

Therefore all the limitations of the instant claims 1, 3-9 are expressly met by Fujimaru.

With regard to the limitations of the instant claims 1 and 2, which are concerned with the amount of protoanemonin and furfural impurities in the starting acrylic acid, it will inherently be within the claimed range because the starting acrylic acid of Fujimaru is identical is obtained by the process identical to the instantly claimed, and is even purified in a way identical to that described in the instant specification on page 6, lines 12-16. Since the claimed compound is not novel, but is identical to that of the prior art, obtained by the method identical to that of the prior art and purified by the method identical to that of the prior art, it is not rendered patentable by recitation of properties, whether or **not** these properties are shown or suggested in prior art. **In re Spada**, 911 F. 2d 705, 709 15 USPQ 1655, 1658 (Fed. Cir. 1990).

4. Claims 4, 8, 10 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaru in view of Yanase et al (U.S. 6,187,872).

Fujimaru discloses the process identical to that instantly claimed and provides for neutralization of acrylic acid before, during or after polymerization with alkali metal salts, as discussed above. The disclosure of Fujimaru differs from the instant claims by the use of a salt for neutralization vs. a hydroxide of the same metal as per instant claims 4, 8 and 10.

Yanase discloses a method of making superabsorbent agent by polymerizing acrylic acid, and neutralizing the hydrogel obtained by polymerization with conventional neutralization agents or neutralizing raw acrylic acid to some degree before polymerization. (abstract and col. 8, lines 66, 67, col. 9, lines 1-7). Such neutralization agents that are used in excess to achieve desirable degree of neutralization, are listed in col. 17, lines 35-49. Among those neutralization agents are "conventionally known" alkali metal hydroxides and alkali metal salts. Therefore, Yanase recognizes equivalency of hydroxides and salts of alkali metals in a neutralization process.

Therefore, a person skilled in the art would have found it obvious to employ hydroxides of Yanase in a similar process of Fujimaru based on their recognized equivalency, with the reasonable expectation of success.

In the instant case substitution of equivalent methods requires no express motivation, as long as the prior art recognizes equivalency, In re Fount 213 USPQ 532 (CCPA 1982); In re Siebentritt 152 USPQ 618 (CCPA 1967); Graver Tank & Mfg. Co. Inc. V. Linde Air products Co. 85 USPQ 328 (USSC 1950).

5. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fujimaru in view of any one of the following: Maezawa et al (U.S. 3,725,208) or JP 9-316027 or GB 2,285,046, each one individually.

Fujimaru discloses the use of a starting material, acrylic acid, that was obtained and purified by the methods analogous to those claimed by Applicants.

Fujimaru does not specifically disclosed that distillation takes place in the presence of hydrazine compound.

The use of hydrazine compounds in purification of acrylic acid in order to reduce the aldehyde impurities is routinely used in the art and has been known for a long time. A large number of publications employ such conventional method. Thus each of the above references provides a process for distillation of acrylic acid with a specific reagent-hydrazine, in order to reduce the aldehyde content (Maezawa –title, col. 1, line 29, col. 2, lines 12, 13, Examples 1- 9, claims 4, 5; JP'027-abstarct; GB'0469 abstract, page 3, lines 9-20, claim 1).

The motivation to utilize such compounds in the process of Fujimaru is derived from his disclosure that recognizes the presence of aldehyde impurities and the necessity of their removal and suggests that conventional and improved distillation processes can be used to remove such impurities. Therefore, a person skilled in the art, motivated by teaching of Fujimaru, would have found it obvious at the time the invention was made to utilize conventional reagent, namely hydrazine compound, in a distillation process of Fujimaru to reduce aldehyde impurities and thus to arrive at the instant claims.

***Response to Arguments***

6. Applicant's arguments filed January 13, 2003 have been fully considered but they are not persuasive. The crux of Applicants arguments is that the acrylic acid of Fujimaru, wherein the distillation is conventional does not reduce the protoanemonin content to within the claimed range, and that a general disclosure of distillation does not inherently produce acrylic acid having the claimed limits for the impurities.

In response to this, Applicants attention is drawn to their own specification, paragraph bridging pages 5 and 6, which states that if after production of acrylic acid it impurity amount satisfies the requirement of the instant process, the acrylic acid is used without further purification, farther down on page 6, Applicants describe ***conventional*** (emphasis added-T.Z.) distillation and/or crystallization process that may be further enhanced in order to reduce the amount of protoanemonin and furfural.

Fujimaru not only discloses the same distillation and crystallization methods of acrylic acid purification in col. 9, lines 19-40, but enhances such purification process by **exactly the same way**, as does instant specification

The phrase "the step . . . is carried out more carefully than conventional cases" in method (2) above means that the rectification degree is raised, for example, by **increasing the number of columns or the reflux ratio** (both in the case where the distillation method is employed as the purification method) **or the number of times of**

**the crystallization (in the case where the crystallization method is employed as the purification method).** (Col. 10, lines 24-31)

Therefore, Applicants' argument that purification process of a starting material in Fujimaru is different is erroneous, the purification process in Fujimaru is described with sufficient specificity and does inherently produce the same product with the same amount of impurities. It is axiomatic that one who performs the steps of a process must necessarily produce all of its advantages. Mere recitation of a newly discovered **property or function** that is inherently possessed by the things **or steps in the prior art does not** cause a claim drawn to those things to distinguish over the prior art.

**Leinoff v. Louis Milona & Sons, Inc.** 220 USPQ 845 (CAFC 1984).

With regard to Applicants' argument on claim 8, that Fujimaru is silent about the aldehyde content, as per instant claim 8, the same rationale as applied above to claim 1 is incorporated herein by reference in its entirety. Furthermore, Fujimaru teaches that "crude acrylic acid" is further purified to remove very small amount of polymerization-inhibitor aldehyde, thus obtaining purified acrylic acid" (col. 9, lines 34, 35). This virtually removes entirely aldehyde impurities.

Therefore, based on the above discussion, wherein the method of making and purification of a starting process of Fujimaru is identical to the process of making and purification, as instantly claimed, the inherency has been established. To establish inherency, the **extrinsic** evidence of the identical process and the identical product made clear that the missing descriptive matter (amount of impurity) is necessarily present in the thing described in the reference, and that it would be so recognized by



Art Unit: 1713

persons of ordinary skill., as per *In re Oelrich*, 666 F.2d 578, 581-82, 212 USPQ 323, 326 (CCPA 1981).

With regard to Applicants' argument that Fujimaru does not recognize that the reduction of aldehyde content is performed by treating with alkali metal hydroxide, it is noted that the reference does disclose the treatment before polymerization, as discussed above. and further Applicants did not claim that the treatment with alkali metal is performed with the purpose to reduce the amount of aldehyde. Therefore, Applicants' arguments are more specific than the claim.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., reducing impurities by oxidation conditions?????) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Applicants arguments with regard to new claims 10-14 are addressed above. Applicants arguments about claim 15 are confusing, since claim 15 does not exist.

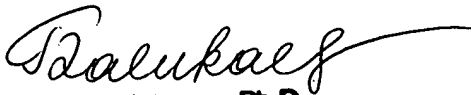
7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703)308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

  
Tatyana Zalukaeva, Ph.D.  
Primary Examiner  
Art Unit 1713

March 31, 2003